

## WISSENSCHAFTLICHE KURZMITTEILUNG

### On the karyotype of the Long-eared hedgehog, *Hemiechinus auritus* (Gmelin, 1770) (Mammalia: Insectivora), in Turkey

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*Hemiechinus auritus* is distributed throughout Libya, Egypt, Israel, Lebanon, Syria, Turkey, USSR, Iran, Afghanistan, Pakistan, Mongolia, and China (ELLERMAN and MORRISON-SCOTT 1951; BOBRINSKY et al. 1965; NIETHAMMER 1969; HARRISON 1972; CORBET 1978, 1988; OSBORN and HELMY 1980; SCHOENFELD and YOM-TOV 1985; HARRISON and BATES 1991). The karyotype of this species of hedgehog was described from Daghestan (ORLOV 1969), Egypt (DE HONDT 1972), Iraq (BHATNAGAR and EL-AZAWI 1978), Afghanistan (GROPP et al. 1969), India (SOBHI and GILL 1980), but not from other regions. The aim of the present study is to describe karyological characteristics of *H. auritus* in Turkey.

We collected 12 specimens from four localities (Fig. 1) (Aralyk 2, Ceylanpınar 3, Harran 5, Nizip 2) in Turkey and karyotyped four specimens from Ceylanpınar, Harran, and Nizip in southeastern Turkey. Karyotype preparations were made from bone marrow of animals treated with colchicine according to FORD and HAMERTON (1956). 25 metaphase cells of each animal were examined.

*H. auritus* has  $2n = 48$ ,  $NFa = 92$  and  $NF = 96$ . All the autosomal pairs are bi-armed. The karyotype has a large submetacentric, a large subtelocentric pair, six dot-like chromo-

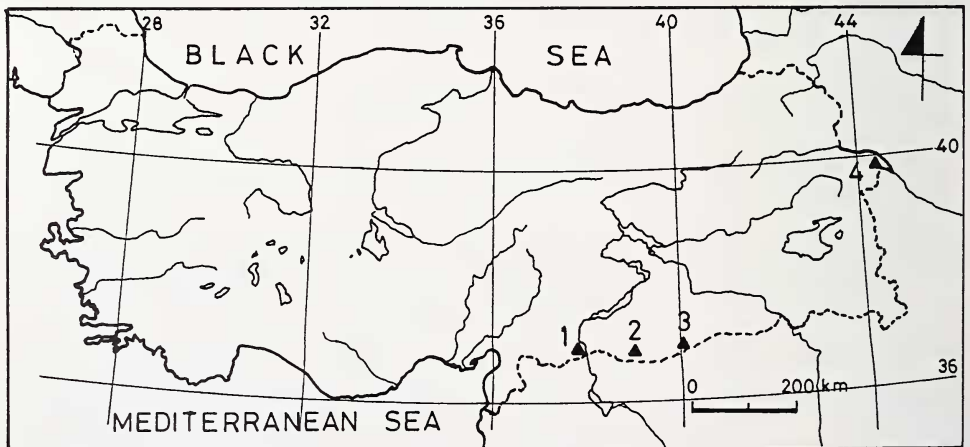


Fig. 1. Recorded localities (▲) of *H. auritus*. 1. Nizip, 2. Harran, 3. Ceylanpınar, 4. Aralyk

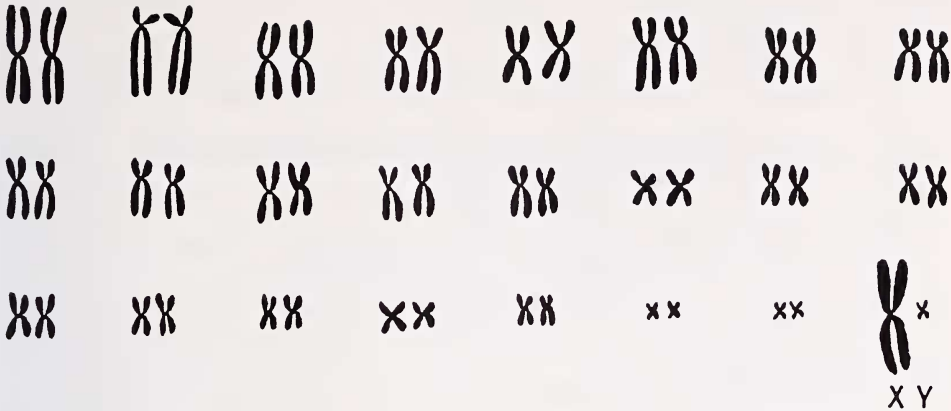


Fig. 2. The karyotype of a male *H. auritus* from Harran.

somes, and 18 pairs of submetacentric and metacentric ones. The X chromosome is a large metacentric and the Y chromosome is the smallest metacentric (Fig. 2).

The karyotype of *H. auritus* also contains  $2n = 48$  chromosomes in Iraq (BHATNAGAR and EL-AZAWI 1978), in Daghestan (ORLOV 1969), and in Egypt (GROPP et al. 1969). According to BHATNAGAR and EL-AZAWI (1978), the karyotype of *H. auritus* in Iraq consists of 43 macro- and 5 micro-chromosomes. We found the same karyotype in Turkish specimens, except the large metacentric X chromosome and the metacentric Y chromosome. The karyotype of *H. auritus* from Turkey is similar to that given by ZIMA and KRAL (1984).

In *Erinaceus europaeus*, a karyotype of  $2n = 48$  chromosomes has one medium-sized pair of acrocentric (ZIMA and KRAL 1984), while there is no acrocentric chromosome in *H. auritus*. In most species of hedgehogs, the diploid chromosome number was described as being 48 (GEISLER and GROPP 1967; HSU and BENIRSCHKE 1968; GROPP et al. 1969; NATARAJAN and GROPP 1971; GROPP and NATARAJAN 1972). These authors noted large subtelocentric chromosomes in the karyotypes of other hedgehogs, as observed in the karyotype of *H. auritus* in Turkey. According to DOĞRAMACI and GÜNDÜZ (1993), *E. concolor* in Turkey has  $2n = 48$ ,  $NFa = 90$  and  $NF = 94$ , the autosomes contain four pairs of large subtelocentric and one pair of small acrocentric, whereas acrocentric chromosomes are absent in the karyotype described in this study for *H. auritus*.

The sex chromosomes are variable in both *H. auritus* and the other hedgehogs. The X chromosome is metacentric (the smallest one of the macro-chromosomes) (BHATNAGAR and EL-AZAWI 1978) and sub-metacentric (HSU and BENIRSCHKE 1968) for *E. europaeus* and large metacentric (DOĞRAMACI and GÜNDÜZ 1993) for *E. concolor*. We found the X chromosome to be large metacentric for *H. auritus*, which is different from that given by BHATNAGAR and EL-AZAWI (1978), the same in *E. concolor* (DOĞRAMACI and GÜNDÜZ 1993).

The Y chromosome is micro-chromosome and subtelocentric in *H. auritus* and a medium-sized submetacentric in *Paraechinus aethiopicus* (BHATNAGAR and EL-AZAWI 1978), micro-submetacentric in *E. e. europaeus* and micro-metacentric in *E. concolor* (DOĞRAMACI and GÜNDÜZ 1993). In *H. auritus* from Turkey the Y chromosome is micro-metacentric which is different from *H. auritus* from Iraq, *P. aethiopicus* from Iraq but similar to *E. concolor* from Turkey. This showed that the Y chromosome is variable in interpopulation as well as among intrapopulation in the family Erinaceidae.

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